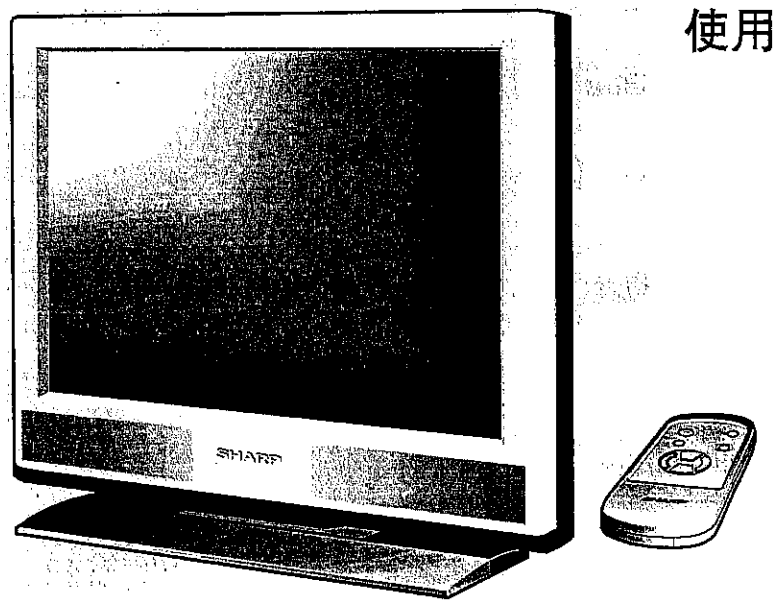
SHARP®

LC-20VM2

LCD AV MONITOR
液晶影音顯示屏
液晶影音显示屏

ENGLISH

OPERATION MANUAL
使用説明書
使用说明书



PRINTED IN JAPAN
日本印刷
日本印刷
TINS-6903CEZZ
9K.T2355-A

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本説明用紙使用的是再生紙。
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ENGLISH

OPERATION MANUAL

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Dear SHARP Customer

Thank you for your purchase of the Sharp LCD product. To ensure safety and many years of trouble-free operation of your product, please read the Safety Precautions carefully before using this product.

Safety Precautions

Electricity is used to perform many useful functions, but it can also cause personal injuries and property damage if improperly handled. This product has been engineered and manufactured with the highest priority on safety. However, improper use can result in electric shock and/or fire. In order to prevent potential danger, please observe the following instructions when installing, operating and cleaning the product. To ensure your safety and prolong the service life of your LCD product, please read the following precautions carefully before using the product.

1. Read instructions—All operating instructions must be read and understood before the product is operated.
2. Keep this manual in a safe place—These safety and operating instructions must be kept in a safe place for future reference.
3. Observe warnings—All warnings on the product and in the instructions must be observed closely.
4. Follow instructions—All operating instructions must be followed.
5. Cleaning—Unplug the power cord from the AC outlet before cleaning the product. Use a damp cloth to clean the product. Do not use liquid cleaners or aerosol cleaners.
6. Attachments—Do not use attachments not recommended by the manufacturer. Use of inadequate attachments can result in accidents.
7. Water and moisture—Do not use the product near water, such as bathtub, washbasin, kitchen sink and laundry tub, swimming pool and in a wet basement.
8. Stand—Do not place the product on an unstable cart, stand, tripod or table. Placing the product on an unstable base can cause the product to fall, resulting in serious personal injuries as well as damage to the product. Use only a cart, stand, tripod, bracket or table recommended by the manufacturer or sold with the product. When mounting the product on a wall, be sure to follow the manufacturer's instructions. Use only the mounting hardware recommended by the manufacturer.
9. When relocating the product placed on a cart, it must be moved with utmost care. Sudden stops, excessive force and uneven floor surface can cause the product to fall from the cart.
10. Ventilation—The vents and other openings in the cabinet are designed for ventilation. Do not cover or block these vents and openings since insufficient ventilation can cause overheating and/or shorten the life of the product. Do not place the product on a bed, sofa, rug or other similar surface, since they can block ventilation openings. This product is not designed for built-in installation; do not place the product in an enclosed place such as a bookcase or rack, unless proper ventilation is provided or the manufacturer's instructions are followed.

11. Power source—This product must operate on a power source specified on the specification label. If you are not sure of the type of power supply used in your home, consult your dealer or local power company. For units designed to operate on batteries or another power source, refer to the operating instructions.
12. Power cord protection—The power cords must be routed properly to prevent people from stepping on them or objects from resting on them. Check the cords at the plugs and product.
13. If you plan to use a 13-VDC power supply unit other than the AC adapter supplied with the product, make sure the power supply unit provides stable voltage with minimum fluctuations. Unstable power supply can cause problems in the product.
14. The LCD panel used in this product is made of glass. Therefore, it can break when the product is dropped or applied with impact. Be careful not to be injured by broken glass pieces in case the LCD panel breaks.
15. Overloading—Do not overload AC outlets or extension cords. Overloading can cause fire or electric shock.
16. Entering of objects and liquids—Never insert an object into the product through vents or openings. High voltage flows in the product, and inserting an object can cause electric shock and/or short internal parts. For the same reason, do not spill water or liquid on the product.
17. Servicing—Do not attempt to service the product yourself. Removing covers can expose you to high voltage and other dangerous conditions. Request a qualified service person to perform servicing.
18. Repair—If any of the following conditions occurs, unplug the power cord from the AC outlet, and request a qualified service person to perform repairs.
    a. When the power cord or plug is damaged.
    b. When a liquid was spilled on the product or when objects have fallen into the product.
    c. When the product has been exposed to rain or water.
    d. When the product does not operate properly as described in the operating instructions. Do not touch the controls other than those described in the operating instructions. Improper adjustment of controls not described in the instructions can cause damage, which often requires extensive adjustment work by a qualified technician.
    e. When the product has been dropped or damaged.
    f. When the product displays an abnormal condition. Any noticeable abnormality in the product indicates that the product needs servicing.
19. Replacement parts—In case the product needs replacement parts, make sure that the service person uses replacement parts specified by the manufacturer, or those with the same characteristics and performance as the original parts. Use of unauthorized parts can result in fire, electric shock and/or other danger.
20. Safety checks—Upon completion of service or repair work, request the service technician to perform safety checks to ensure that the product is in proper operating condition.
21. Wall or ceiling mounting—When mounting the product on a wall or ceiling, be sure to install the product according to the method recommended by the manufacturer.
22. Heat sources—Keep the product away from heat sources such as radiators, heaters, stoves and other heat-generating products (including amplifiers).

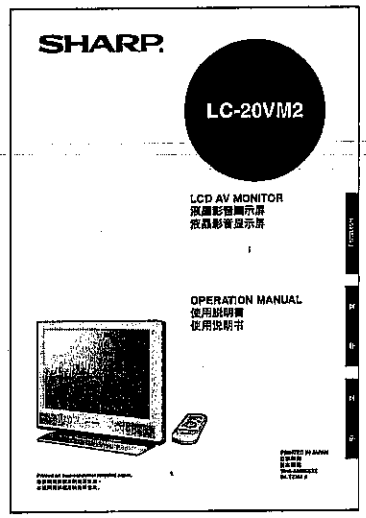
The LCD panel is a very high technology product with 921,600 thin film transistors, giving you fine picture details.
Occasionally, a few non-active pixels may appear on the screen as a fixed point of blue, green or red.
Please note that this does not affect the performance of your product.

This equipment complies with the requirements of Directive 89/336/EEC and 73/23/EEC as amended by 93/68/EEC.

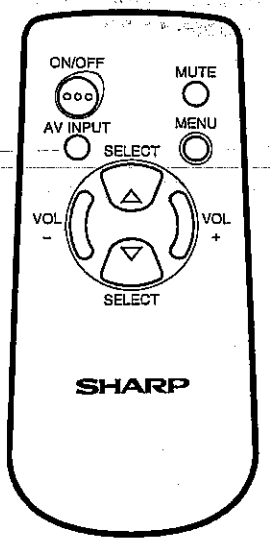
Supplied Accessories

Make sure the following accessories are provided with the product.

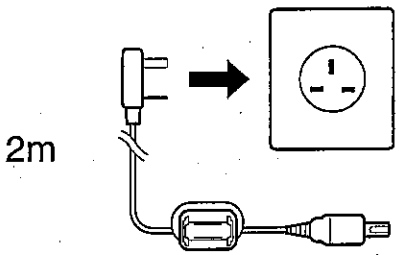
Operation Manual (×1)



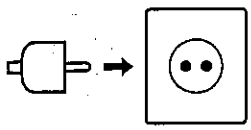
Wireless Remote Control (×1)

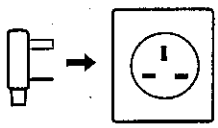


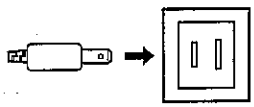
AC cord (×1)

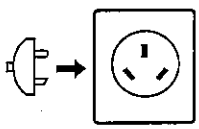


* Product shape varies in some countries. The various types of connectors are shown in the diagram.

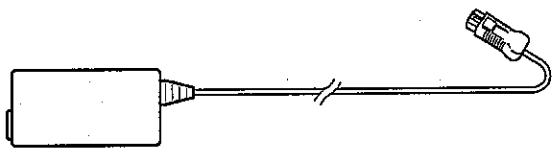




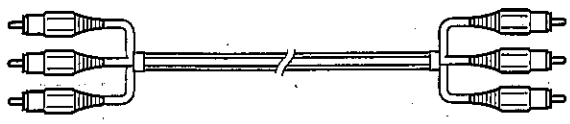




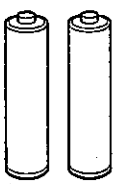
AC adapter (×1)



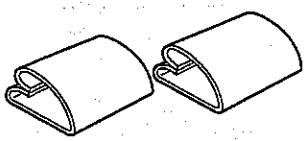
AV cable (×1)



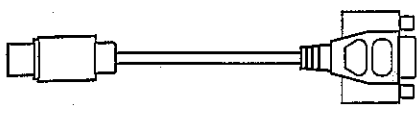
Size AAA dry battery (×2)



Cable clamp (×2)

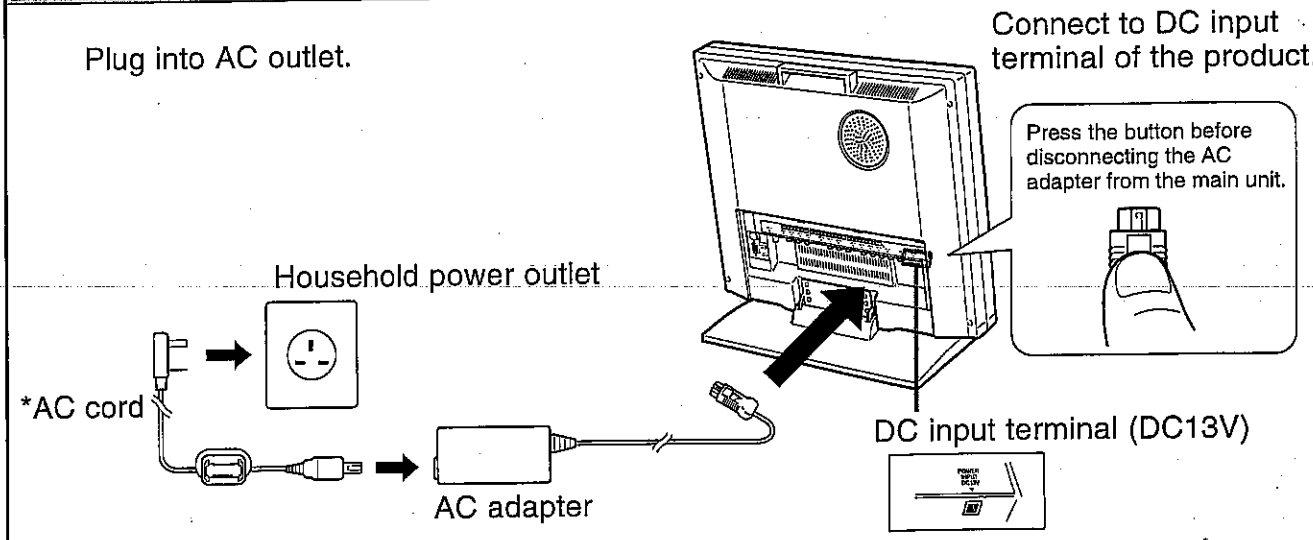


Din-D/sub RS232C cable (×1)



Preparation

Power Connection

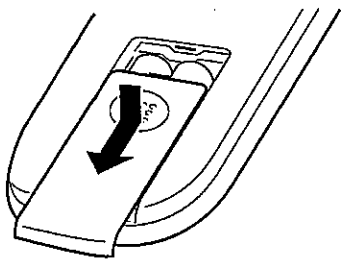

Plug into AC outlet.
Connect to DC input terminal of the product.
Press the button before disconnecting the AC adapter from the main unit.
Household power outlet
*AC cord
DC input terminal (DC13V)
AC adapter

* Product shape varies in some countries

Batteries for Remote Control

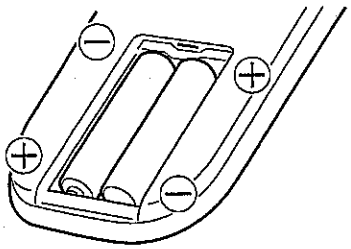
If the remote control fails to operate monitor functions, replace the batteries in the remote control.

1 Open the battery cover.



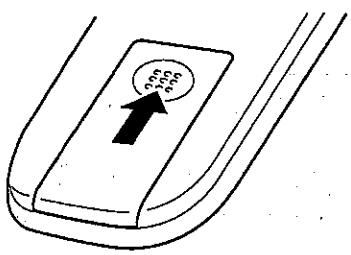
■ Slide the cover while pressing down.

2 Insert batteries (two size-AAA batteries, supplied with product).



■ Place batteries with their terminals corresponding to the (+) and (–) indications in the battery compartment.

3 Close the battery cover.



Caution

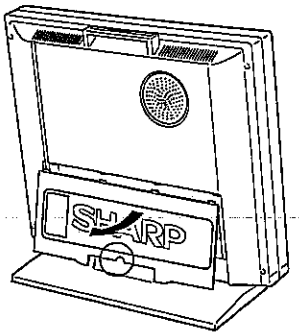
Cautions regarding batteries

Improper use of batteries can result in a leakage of chemicals and/or explosion. Be sure to follow the instructions below.

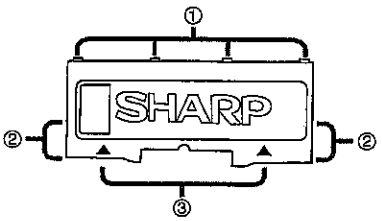
- Place batteries with their terminals corresponding to the (+) and (–) indications.
- Different types of batteries have different characteristics. Do not mix batteries of different types.
- Do not mix old and new batteries. Mixing old and new batteries can shorten the life of new batteries and/or cause old batteries to leak chemicals.
- Remove batteries as soon as they are non-operable.
  Chemicals that leak from batteries can cause a rash. If chemical leakage is found, wipe with a cloth.
- The batteries supplied with the product may have a shorter life expectancy due to storage conditions.
- If the remote control is not used for an extended period of time, remove batteries from the remote control.

Removing and mounting the rear cover

■ Removal
- Remove the back cover when inserting the cords into the terminals.
- To remove the back cover, gently pull the part marked O forward.

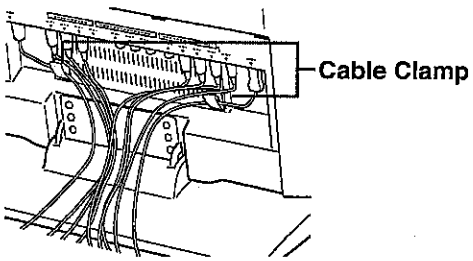


■ Mounting
- Insert the four hooks (①) into the cabinet.
- Making the back cover bulge forward, insert the four hooks (②) into the cabinet.
- Press on the marked parts (③) until the two hooks on the bottom of the cover are locked in place with a click.



Clamping the connection cords

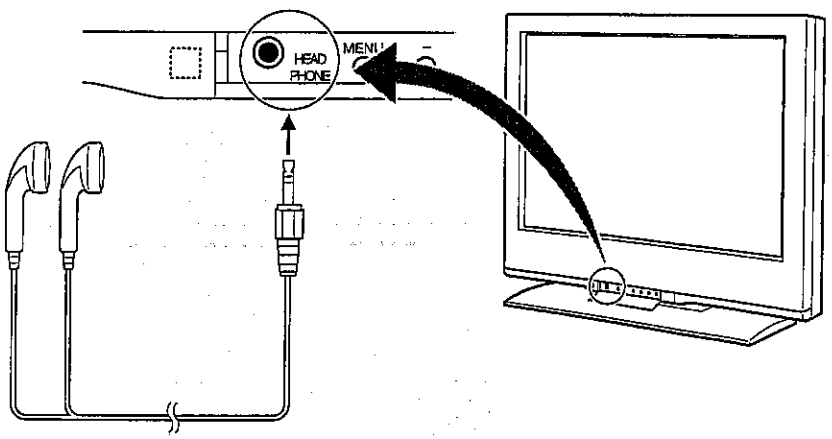
- When mounting the cover, clamp the cords using the included cord holders (cable clamps) so that they do not get caught.
- Stick the two cable clamps near the CONTROL terminal and the DC input terminal, then insert cables into the main unit.



Example of Application

Listening with a Headphone

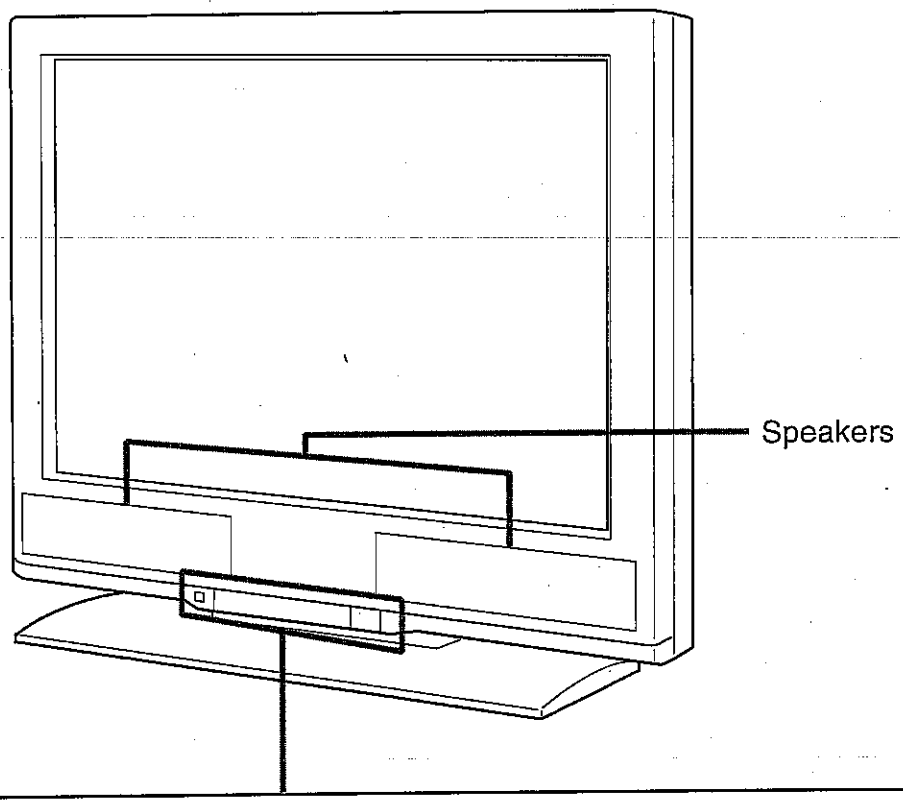
■ Plug the headphone mini-plug into the headphone jack located on the front side of the set.



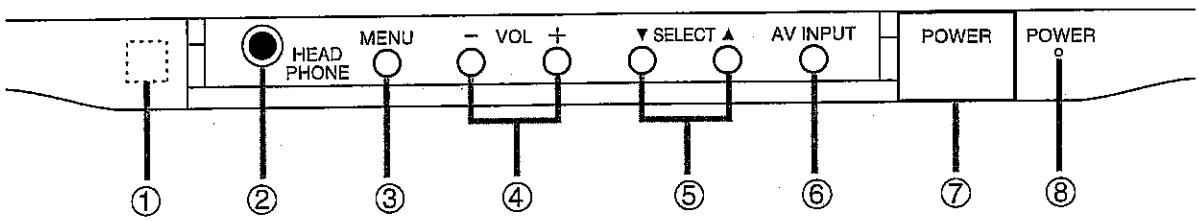
Note The headphone is not included in the supplied accessories.

Names of Parts (Main Unit)

Main Unit (Front View)



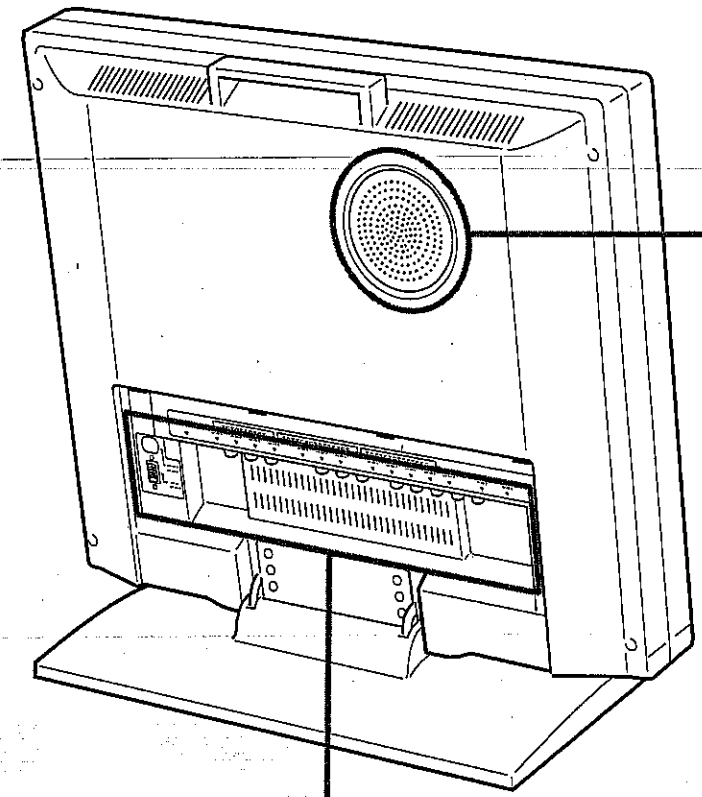
Front Control section



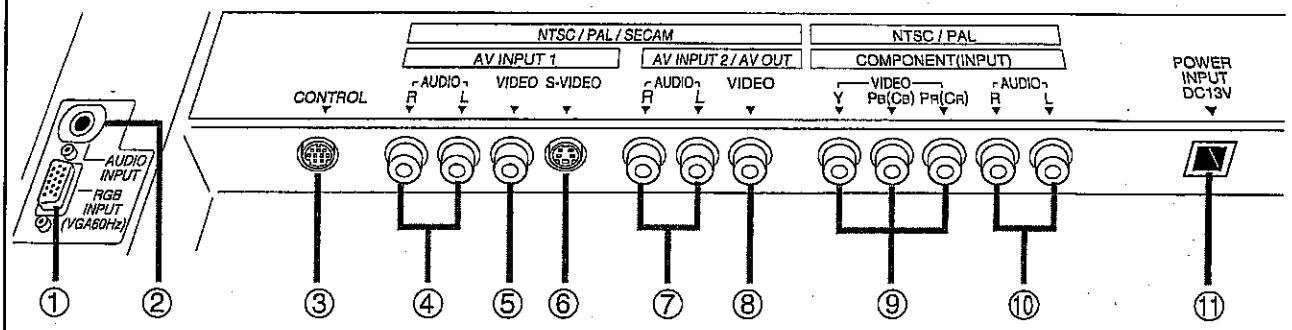
① Remote sensor window
② HEAD PHONE jack
③ MENU button
④ VOL (+)/(–) buttons
⑤ SELECT buttons
⑥ AV INPUT button
⑦ POWER switch
⑧ POWER indicator

* MENU button, VOL (+)/(–) buttons, SELECT buttons and AV INPUT button have the same function as those on the remote control.
This manual describes button functions by referring to the buttons on the remote control.

Main Unit (Rear View)



Rear terminal section

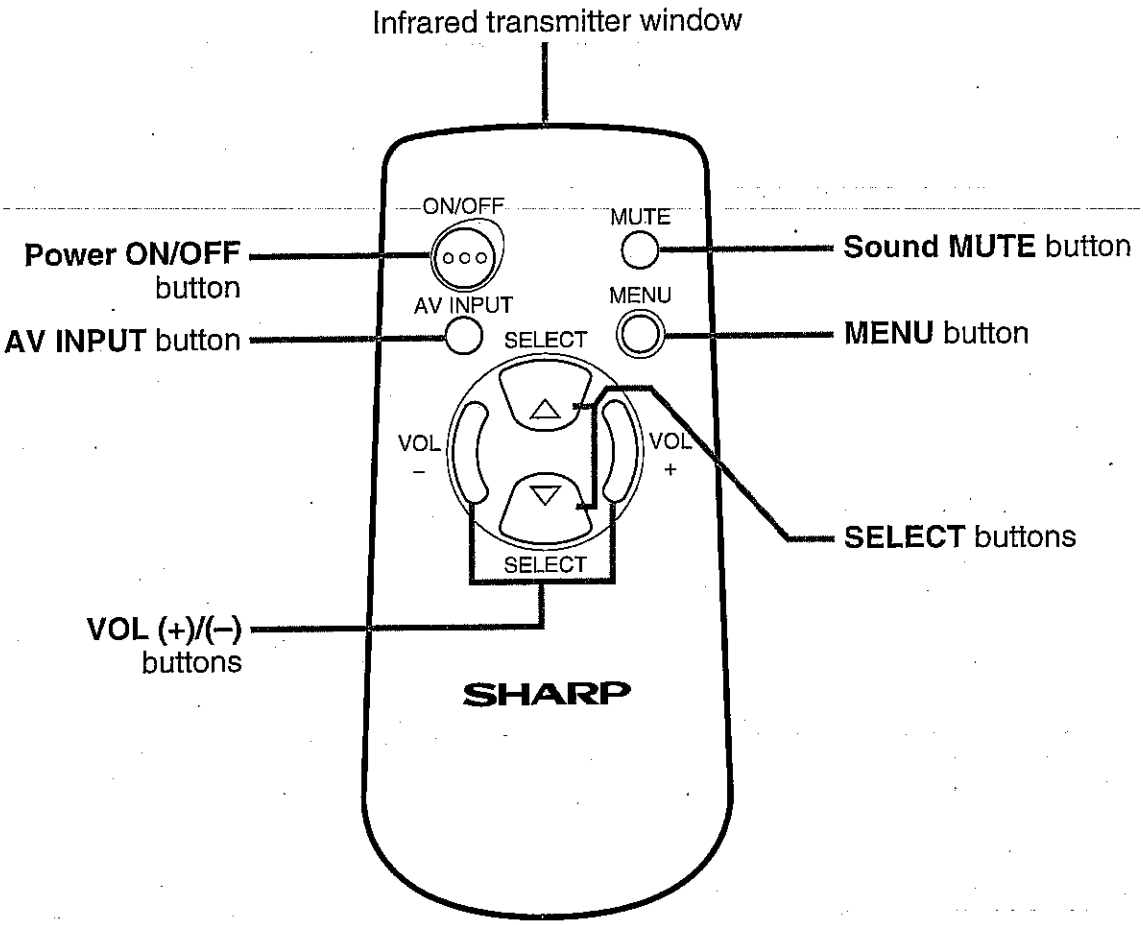


① RGB input terminal
② AUDIO input terminal
③ CONTROL terminal
④ AUDIO input terminal (AV INPUT 1)
⑤ VIDEO input terminal (AV INPUT 1)
⑥ S-VIDEO input terminal (AV INPUT 1)
⑦ AUDIO input terminal (AV INPUT 2/AV OUT)
⑧ VIDEO input terminal (AV INPUT 2/AV OUT)
⑨ VIDEO input terminal (COMPONENT)
⑩ AUDIO input terminal (COMPONENT)
⑪ DC input terminal

* ⑦ and ⑧ can also be used as video/audio output terminals

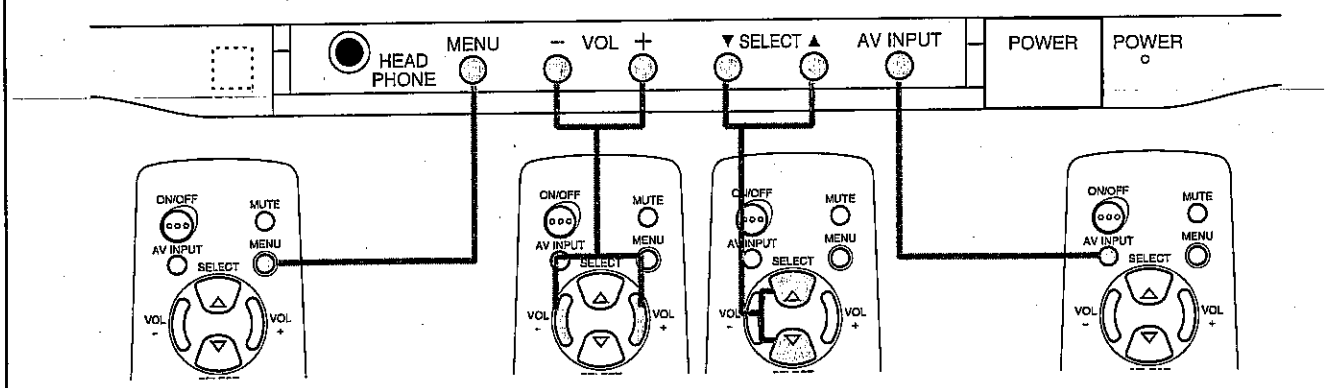
Names of Parts (Remote Control)

Remote control



■ The front control section of the main unit is also provided with the **AV INPUT, SELECT, VOL (+)/(–)** and **MENU** buttons.
* This manual describes button functions by referring to the buttons on the remote control.

Front Control section

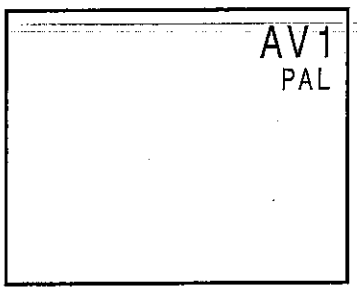


Basic Operation

Turning on POWER

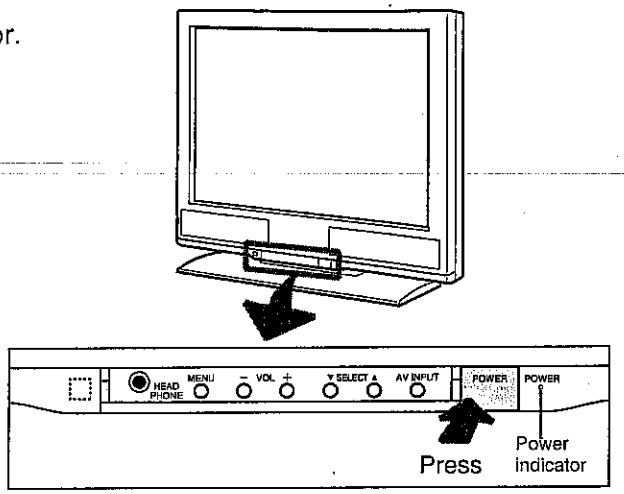
■ Press **POWER**, located on the front side of the main unit.
■ When the Power indicator is red, press the **POWER ON/OFF** on the remote control to turn on the monitor. The Power indicator changes from red to green.

▼ Screen (Video 1 mode)

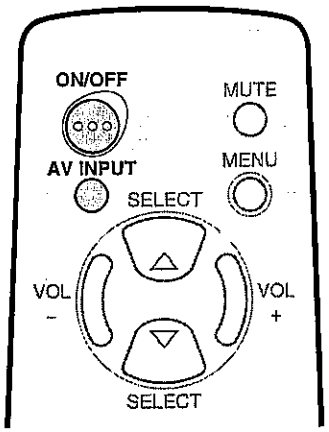


◄Input mode indication disappears after three seconds.

Control section of main unit



Switching AV INPUT AV1/AV2/COMPONENT/RGB



■ Turn on the power of the connected video equipment.
■ Press **AV INPUT** and select the applicable input source. The screen displays AV1, AV2, COMPONENT or RGB at the upper right corner each time **AV INPUT** is pressed.

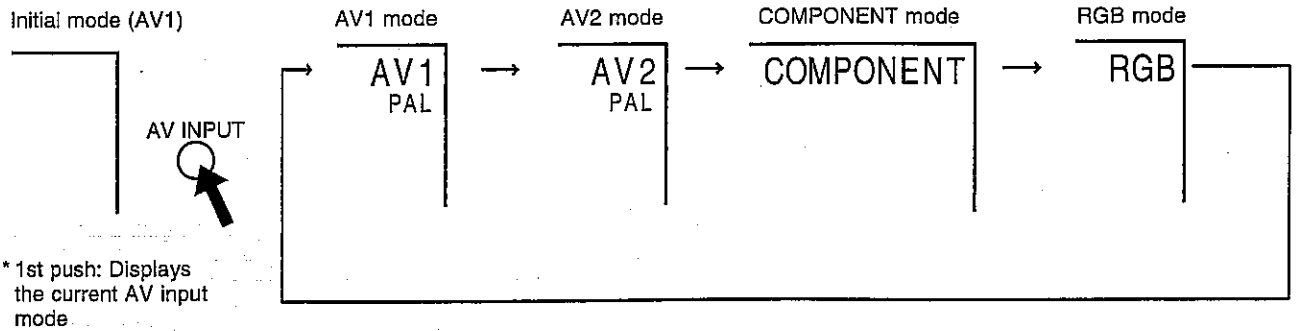
Note

1. AV input mode indication remains for three seconds.
2. To change the AV input mode, press **AV INPUT** while the AV input mode is displayed (within 3 seconds).

◆ AV1: Video equipment connected to the AV1 input terminals.
S-video input terminal is additionally provided for the AV1 input. If both S-video and normal video terminal is connected with cables, the S-video input terminal takes precedence.
◆ AV2: Video equipment connected to the AV2 input terminals.
◆ COMPONENT: Video equipment connected to the component input terminals.
◆ RGB: Personal computer connected to the RGB input terminal.

■ Each time **AV INPUT** is pressed, the indication at the upper right corner on the screen changes in the following order.

▼ Screen

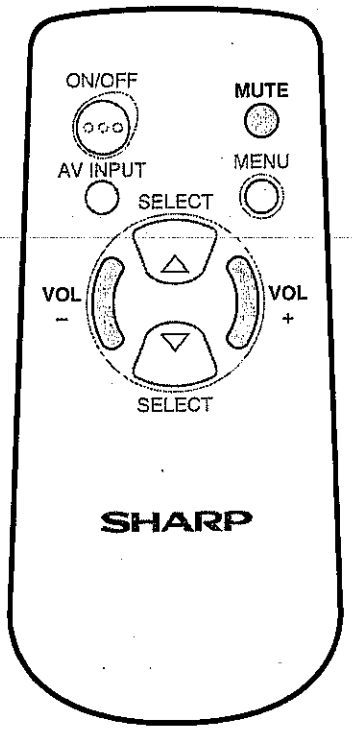


* 1st push: Displays the current AV input mode

■ When the AV2 output function is in use, the mode switches among COMPONENT, AV1 and RGB.

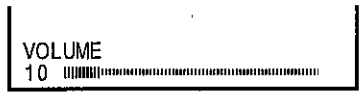
Note The contents displayed on the screen differ according to the contents of the input signal.

Sound Volume



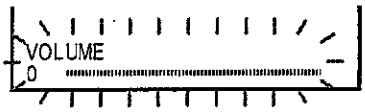
■ Press **VOL (+)** to increase sound volume.
The segment of indicator increases.

■ Press **VOL (–)** to decrease sound volume.
The segment of indicator decreases.

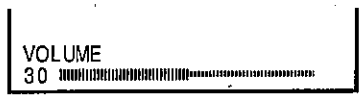


To mute sound

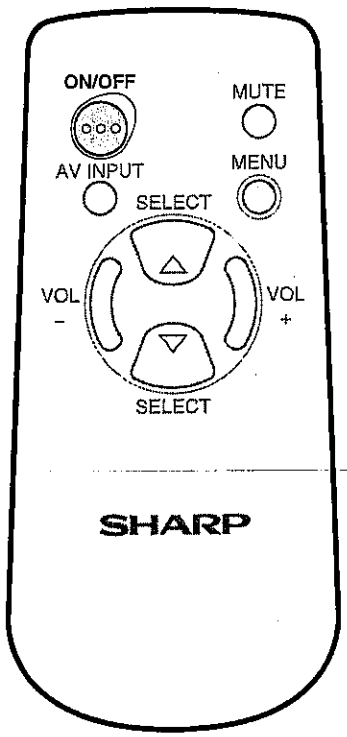
■ Press **MUTE** to temporarily turn off the sound.
Screen display flashes.



■ Press **MUTE** or **VOL (+)/(–)** to turn the sound back to the previous level.



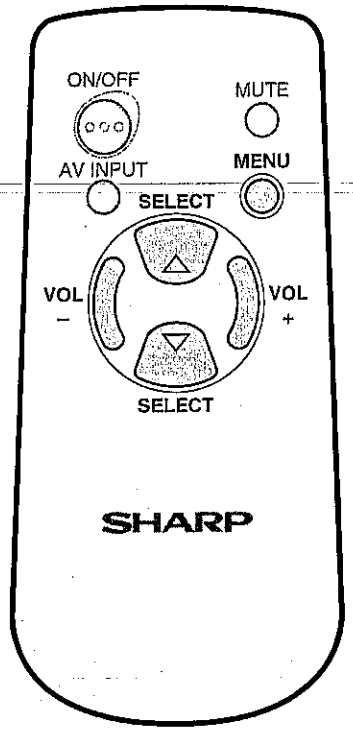
Power ON/OFF standby



■ To turn off the monitor, press **Power ON/OFF**.
The Power indicator will turn red.
■ To turn the monitor back on, press **Power ON/OFF** again.
The Power indicator will turn green.

Adjustment

Adjusting the PICTURE settings



1 Press **MENU** to display the Menu screen.

```
MENU
▶PICTURE
 SOUND
 PRESET
```

2 Press **SELECT** to move the cursor to PICTURE.

```
MENU
▶PICTURE
 SOUND
 PRESET
```

3 Press **VOL (+)/(–)** to display the PICTURE Menu screen.

```
PICTURE AV1
▶CONTRAST      [   0]
 TINT          [   0]
 COLOUR        [   0]
 BLACK LEVEL   [   0]
 SHARPNESS     [   0]
 RED           [   0]
 BLUE          [   0]
 COLOUR SYSTEM [ AUTO]
 RESET
SELECT:▲·▼
ENTER :( · ) EXIT: MENU
```

4 Press **SELECT** to move the cursor and select the desired adjustment item.
All of adjustment item is shown in the diagram on page 13.

```
PICTURE AV1
 CONTRAST      [   0]
 TINT          [   0]
▶COLOUR        [   0]
 BLACK LEVEL   [   0]
 SHARPNESS     [   0]
 RED           [   0]
 BLUE          [   0]
 COLOUR SYSTEM [ AUTO]
 RESET
SELECT:▲·▼
ENTER :( · ) EXIT: MENU
```

5 Press **VOL (+)/(–)** to display the screen for the selected adjustment item.

```
COLOUR
      30
SELECT:▲·▼
ADJUST:( · ) EXIT: MENU
```

6 Press **VOL (+)/(–)** to make adjustment.

Note The TINT indication appears only when NTSC (N358/N443) broadcasts are received.

Switching the System

Set the system to AUTO for normal reception. The AUTO mode automatically detects the receiving signal system and changes the reception system of the set.
When the picture or sound is not stable, switching to an appropriate system may improve the picture or sound quality.

AV1,2, COMPONENT mode

Selected item	Press VOL (–)	Press VOL (+)
CONTRAST 30	Decrease contrast	Increase contrast
TINT 0	Toward purple	Toward green
COLOUR 30	Lower colour intensity	Higher colour intensity
BLACK LEVEL 0	Less bright	More bright
SHARPNESS 0	Soft picture	Hard picture
RED 0	Less red level	More red level
BLUE 0	Less blue level	More blue level
COLOUR SYSTEM [AUTO]	Press VOL (+) to select colour system. → AUTO → N358 → N443 → PAL → PAL-M → SECAM →	

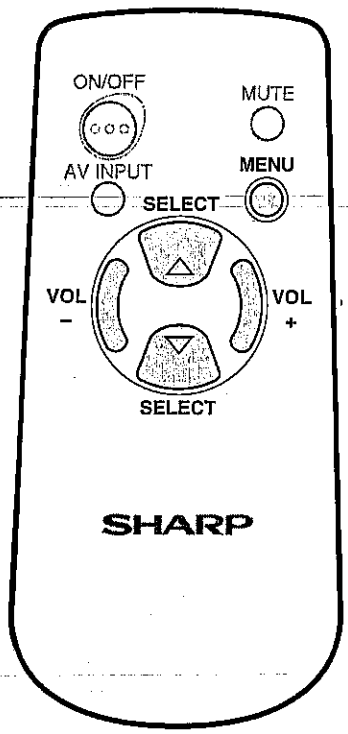
Note The COMPONENT mode doesn't contain TINT and COLOUR SYSTEM.
PAL60 is also displayed when the signal is received in PAL system.

RGB mode

Selected item	Press VOL (–)	Press VOL (+)
CONTRAST 30	Decrease contrast	Increase contrast
BLACK LEVEL 0	Less bright	More bright
RED 0	Less red level	More red level
BLUE 0	Less blue level	More blue level

Note If no button is pressed for more than approximately 30 seconds, the MENU setting is automatically cancelled and the display returns to the initial screen.
If VOL (+)/(–) is pressed after RESET is selected with SELECT, the factory setting is restored.

Adjusting the SOUND settings



1 Press **MENU** to display the Menu screen.

```
MENU
▶PICTURE
 SOUND
 PRESET
```

2 Press **SELECT** to move the cursor to SOUND.

```
MENU
 PICTURE
▶SOUND
 PRESET
```

3 Press **VOL (+)/(–)** to display the SOUND Menu screen.

```
SOUND
▶SPEAKER [ON]
  LINE OUT [ STABLE]
 TREBLE   [  0]
 BASS     [  0]
 BALANCE  [  0]
 RESET
```

4 Press **SELECT** to move the cursor and select the desired adjustment item. All of adjustment item is shown in the diagram below.

```
SOUND
 SPEAKER [ON]
  LINE OUT [ STABLE]
 TREBLE   [  0]
▶BASS     [  0]
 BALANCE  [  0]
 RESET
```

5 Press **VOL (+)/(–)** to display the selected adjustment screen.

```
BASS          –      +
              0
SELECT:▲·▼
ADJUST:( · ) EXIT: MENU
```

6 Press **VOL (+)/(–)** to make adjustment.

Note When the RESET is selected while the SOUND Menu screen is displayed, adjusted items are canceled and the default settings (factory settings) are restored.

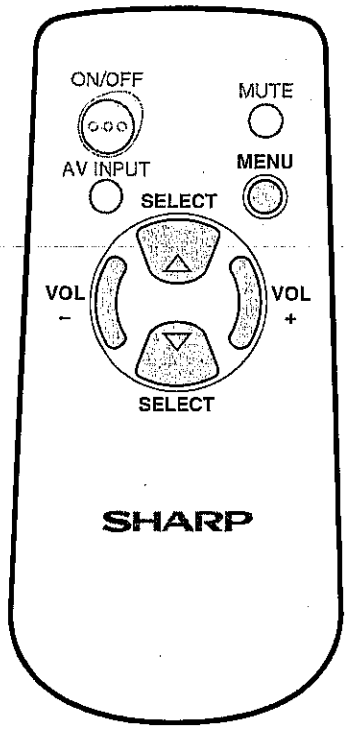
Selected item	Press VOL (–)		Press VOL (+)
SPEAKER [ON] LINE OUT [STABLE]	Press VOL (+) to select speaker and Line out settings SPEAKER [ON] LINE OUT [STABLE]	⟷	SPEAKER [OFF] LINE OUT [VARIABLE]
TREBLE – + 0	Lower treble level	– + ⬅ ➡	Higher treble level
BASS – + 0	Lower bass level	– + ⬅ ➡	Higher bass level
BALANCE 0	Shift centre of sound toward left	0~L30 0~R30 ⬅ ➡	Shift centre of sound toward right

Note

- If no button is pressed for more than approximately 30 seconds, the MENU setting is automatically canceled and the display returns to the initial screen.
- When AV2 is set to "OUT", it is possible to control the volume from AV2 and the turning on and off of the built-in speakers.

Adjusting the PRESET settings

■ The preset items can be set by the user.



1 Press **MENU** to display the Menu screen.

```
MENU
▶PICTURE
  SOUND
  PRESET
```

2 Press **SELECT** to move the cursor to PRESET.

```
MENU
  PICTURE
  SOUND
▶PRESET
```

3 Press **VOL (+)/(–)** to display the PRESET screen.

```
PRESET
▶BRIGHTNESS      [BRIGHT]
  UPSIDE         [NORMAL]
  RIGHT/LEFT     [NORMAL]
  AV2 IN/OUT     [IN]
  AV1 LINE       [NORMAL]
  SCREEN MODE    [MODE 1]

SELECT:▲·▼
ENTER :( · ) EXIT: MENU
```

4 Check the factory setting of each item on the PRESET screen. The user can change the settings by using **SELECT** and **VOL (+)/(–)** buttons.

Selected item	Factory setting	Setting change
BRIGHTNESS	**[BRIGHT]** Maximum brightness	**[NORMAL]** Brightness 60% → Suitable for viewing in well-lit areas. Saves energy. **[DARK]** Brightness 20% → Sufficiently bright when viewing in dim areas.
UPSIDE	**[NORMAL]** Normal vertical image orientation	**[DOWN]** Inverted image → To display images upside down for special uses.
RIGHT/LEFT	**[NORMAL]** Normal horizontal image orientation	**[MIRROR]** Mirror image → To display mirror images for special uses.
AV2 IN/OUT	**[IN]** AV input 2 in input mode	**[OUT]** AV input 2 changes to AV output mode → Video/audio signals entering AV input 1 is output from AV output 2 terminals to allow recording. * Setting change possible only for AV INPUT 2
AV1 LINE	**[NORMAL]** The audio signals entering from the AUDIO L and R terminals are output from the left and right speakers respectively.	**[MONO]** Only the audio signals entering from the AUDIO L terminal are output from the left and right speakers.
SCREEN MODE	**[MODE 1]** MODE 1 is a simple scan conversion mode and is suited for still pictures.	**[MODE 2]** MODE 2 is a calculated scan conversion mode and is suited for normal pictures. * The scan conversion modes work in PAL and SECAM.

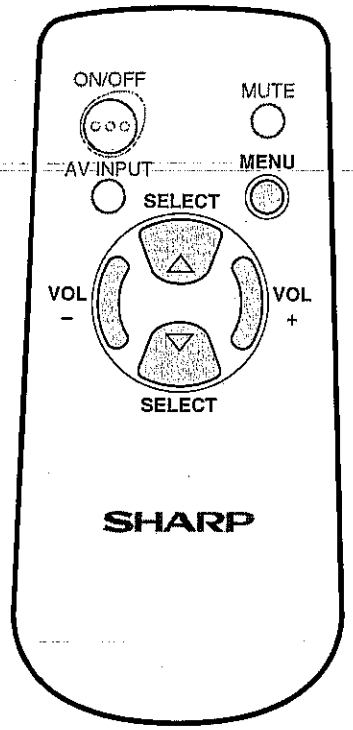
Note

- The Menu screen and the screen selected on the Menu screen remains on the display for 30 seconds. If no button is pressed during the 30 seconds, the display returns to the initial screen.
- The signal input from the S-VIDEO input terminal is not output from the AV OUT terminal for monitoring.

5 After changing PRESET items, press **MENU** to exit from the Menu screen and return to the initial screen.

Adjusting the FINE SYNC Settings(RGB mode only)

■ FINE SYNC settings can be adjusted in RGB mode only.



1 Press **MENU** to display the Menu screen.

```
MENU
▶PICTURE
 FINE SYNC
 SOUND
 PRESET
```

2 Press **SELECT** to move the cursor to FINE SYNC.

```
MENU
 PICTURE
▶FINE SYNC
 SOUND
 PRESET
```

3 Press **VOL(+)/(–)** to display the FINE SYNC screen.

```
FINE SYNC
▶CLOCK      [  0]
 PHASE      [  0]
 H-POS      [  0]
 V-POS      [  0]
 RESET
```

4 Press **SELECT** to move the cursor and select the desired adjustment item.

```
FINE SYNC
 CLOCK      [  0]
▶PHASE      [  0]
 H-POS      [  0]
 V-POS      [  0]
 RESET
```

5 Press **VOL(+)/(–)** to display the screen for the selected adjustment item.

```
PHASE
        10
SELECT:▲・▼
ADJUST:( ・ ) EXIT: MENU
```

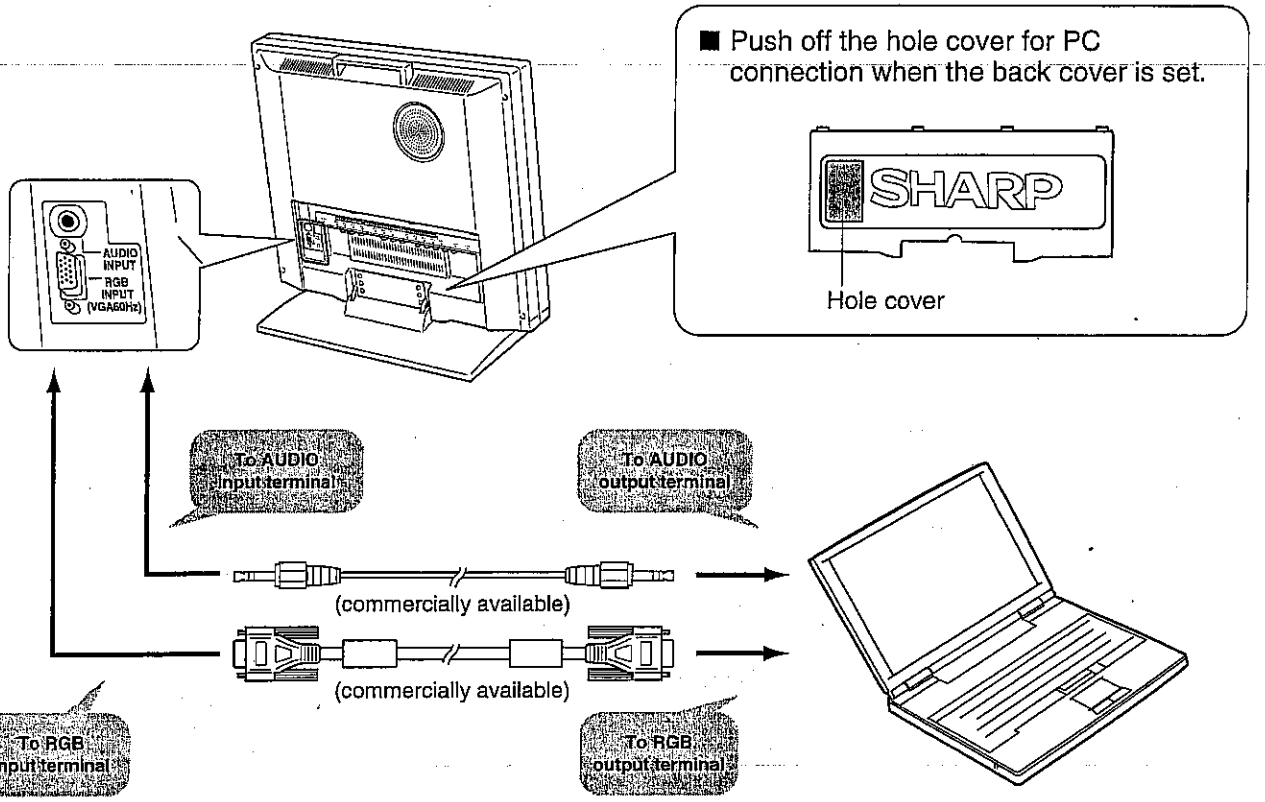
6 Press **VOL(+)/(–)** to make adjustment.

Selected item	Press VOL (–)	Press VOL (+)
CLOCK 0 – +	Set to the position at which there is the least noise	
PHASE 10	Set to the position at which there is the least noise	
H-POS 0 – +	Move the on-screen image to the left	Move the on-screen image to the right
V-POS 0 – +	Move the on-screen image upward	Move the on-screen image downward

Connecting to computer

This LCD AV monitor can be used as the monitor of personal computer.
This unit can be used with the following type of computer and display mode.

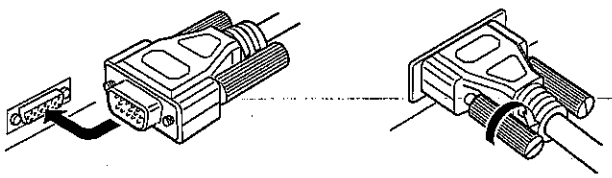
Computer	Display mode (Horizontal dots×Vertical lines)	Horizontal scanning frequency / Vertical frequency	Clock frequency	Note
IBM PC(DOS/V, PC/V, PC/AT) and compatible computers	640×480	31.4688 kHz / 59.9405 Hz	25.175 MHz	VGA



Note No RGB connection cable or PC audio cable is included. Use commercially available cables.

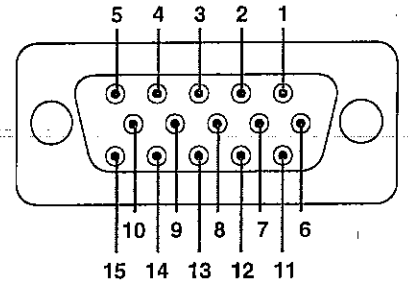
Handling of the RGB Connection Cable

■ Align the pins of this unit and those of the RGB connection cable used to connect the computer and insert, then securely fasten with the screws located at both ends.



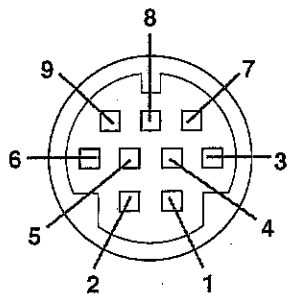
Connection Pin Assignments

RGB input terminal: 15-pin mini D-sub female connector



Pin No.	Signal	Pin No.	Signal
1	Analog input(red)	9	Not connected
2	Analog input(green)	10	GND
3	Analog input(blue)	11	GND
4	Not connected	12	Not connected
5	Composite sync	13	Horizontal sync signal
6	GND (Analog red)	14	Vertical sync signal
7	GND (Analog green)	15	Not connected
8	GND (Analog blue)		

CONTROL terminal: 9-pin mini Din female connector



Pin No.	Signal	Name	I/O	Reference
1	-			Not connected
2	RD	Receive Data	Input	Connected to internal circuit
3	SD	Send Data	Output	Connected to internal circuit
4	-			Not connected
5	SG	Signal Ground		Connected to internal circuit
6	-			Not connected
7	RS	Request to send	Output	Connected to internal circuit
8	-			Not connected
9	-			Not connected

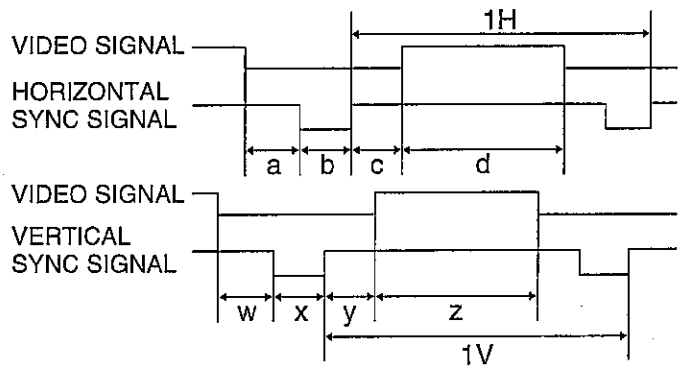
RGB Input Signals (Recommended Timing)

Input signal

Video signal:
Analog input 0 to 0.7Vp-p 75Ω terminal (positive polarity)
Horizontal synchronizing signal:
TTL level (negative polarity)
Vertical synchronizing signal:
TTL level (negative polarity)

Video signal time chart

IBM, DOS/V type



MODE			IBM
			VGA
			GRAPHIC
		dot	640
		line	480
VIDEO		LEVEL	0.7Vp-p, 75Ω load
		TYPE	RGB
H-SYNC	FRONT PORCH a	dot	-
	SYNC b	dot	-
	BACK PORCH c	dot	50
	VIDEO PERIOD d	dot	640
	1H	dot	800
		µs	31.7776
	1dot	ns	39.7219
	1/H	kHz	31.4688
	1/dot	MHz	25.175
	LEVEL		TTL
	SYNC POLARITY	+ / –	–
V-SYNC	FRONT PORCH w	H	-
	SYNC x	H	-
	BACK PORCH y	H	32
	VIDEO PERIOD z	H	480
	1V	H	525
		ms	16.6832
	1/V	Hz	59.9405
	LEVEL		TTL
	SYNC POLARITY	+ / –	–

RS232C terminal specifications

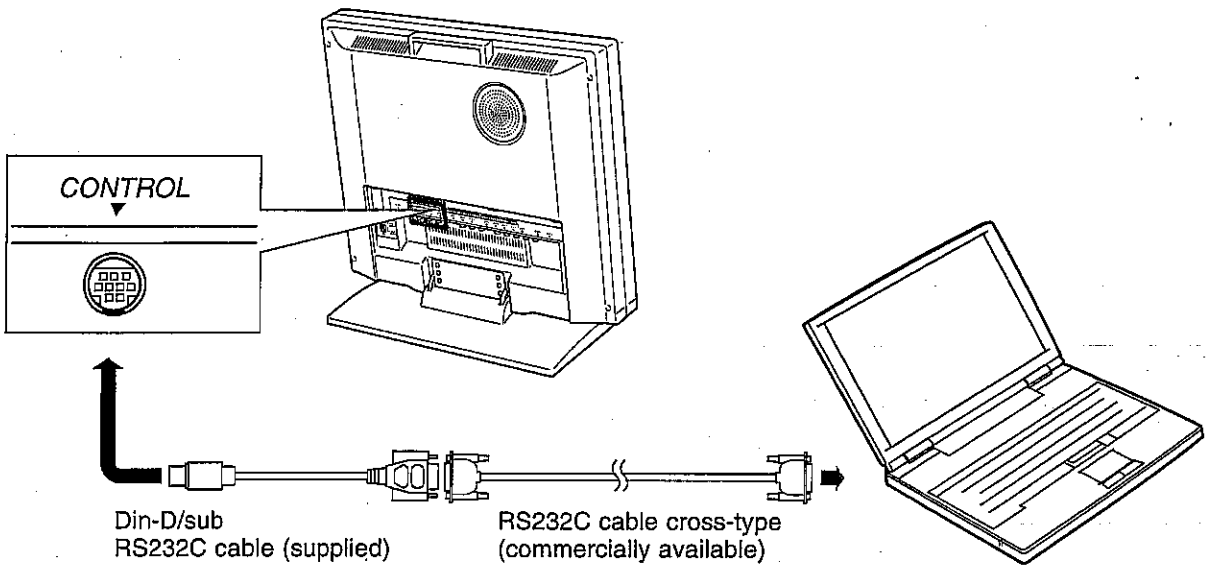
- When a programme is set, the LCD Monitor can be controlled from the computer using the RS232C connector. The input signal (computer/video) can be selected, the volume can be adjusted and various other adjustments and settings can be made, enabling automatic programmed playing.
- Attach an RS232C cable cross-type (commercially available) to the supplied Din-D/sub RS232C for the connections.

Note This operation system should be used by a person who is accustomed to using computers.

Connections

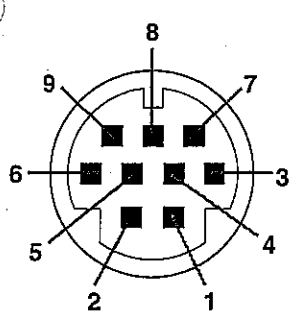
Connect this unit with the RS232C connector of the computer.
Send the control commands from the computer via the RS232C connector.

Note Mount the cable clamps when connecting cables to the rear terminal section (see page 6).



RS232C connector

The specifications of the RS232C connector of this unit are described below.



Pin No.	1	2	3	4	5	6	7	8	9
Signal	-	RD	SD	-	SG	-	RS	-	-

Communication conditions

Set the RS232C communications settings on the computer to match the LCD Monitor's communications conditions.
The LCD Monitor's communications settings are as follows:

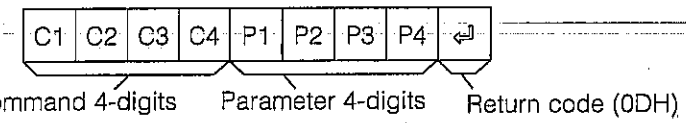
Baud rate	9,600 bps
Data length	8 bits
Parity bit	None
Stop bit	1bit
Flow control	None

Connecting to computer

Communication procedure

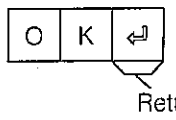
Send the control commands from the computer via the RS232C connector.
The LCD Monitor operates according to the received command and sends a response message to the computer.
Do not send multiple commands at the same time. Wait until the computer receives the OK response before sending the next command.

Command format

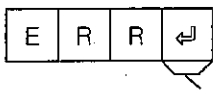


Response code format

Normal response



Problem response (communication error or incorrect command)

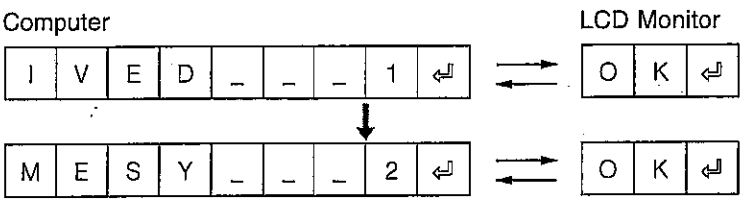


When more than one code is being sent, send each command only after the OK response code for the previous command from the LCD Monitor is verified.

Note When using the computer control function of the LCD Monitor, the LCD Monitor operating status cannot be read to the computer. Therefore, confirm the status by transmitting the display commands for each adjustment menu and checking the status with the On-screen Display. If the LCD Monitor receives a command other than a menu display command, it will execute the command without displaying the On-screen Display.

Commands

Example: The AV input mode set to PAL after switching the display mode to AV1.



CONTROL CONTENTS	COMMAND				PARAMETER			
	C1	C2	C3	C4	P1	P2	P3	P4
POWER OFF	P	O	W	R	_	_	_	0
POWER ON	P	O	W	R	_	_	_	1
AV1	I	V	E	D	_	_	_	1
AV2	I	V	E	D	_	_	_	2
COMPONENT	I	C	E	D	_	_	_	1
RGB	I	R	G	B	_	_	_	1
INPUT CHECK	I	C	H	K	_	_	_	0
AUTO	M	E	S	Y	_	_	_	1
PAL	M	E	S	Y	_	_	_	2
SECAM	M	E	S	Y	_	_	_	3
NTSC 4.43	M	E	S	Y	_	_	_	4
NTSC 3.58	M	E	S	Y	_	_	_	5
PAL-M	M	E	S	Y	_	_	_	6

CONTROL CONTENTS	COMMAND				PARAMETER			
	C1	C2	C3	C4	P1	P2	P3	P4
AV1 CONTRAST(0 ~ 60)	V	A	P	I	_	*	*	*
AV1 BLACK LEVEL(–30 ~ +30)	V	A	B	R	_	*	*	*
AV1 COLOUR(0 ~ 60)	V	A	C	O	_	*	*	*
AV1 TINT(–30 ~ +30)	V	A	T	I	_	*	*	*
AV1 SHARPNESS(–30 ~ +30)	V	A	S	H	_	*	*	*
AV1 RED(–30 ~ +30)	V	A	R	D	_	*	*	*
AV1 BLUE(–30 ~ +30)	V	A	B	E	_	*	*	*
AV1 DISPLAY	V	A	R	E	_	_	_	0
AV1 RESET	V	A	R	E	_	_	_	1
AV2 CONTRAST(0 ~ 60)	V	B	P	I	_	*	*	*
AV2 BLACK LEVEL(–30 ~ +30)	V	B	B	R	_	*	*	*
AV2 COLOUR(0 ~ 60)	V	B	C	O	_	*	*	*
AV2 TINT(–30 ~ +30)	V	B	T	I	_	*	*	*
AV2 SHARPNESS(–30 ~ +30)	V	B	S	H	_	*	*	*
AV2 RED(–30 ~ +30)	V	B	R	D	_	*	*	*
AV2 BLUE(–30 ~ +30)	V	B	B	E	_	*	*	*
AV2 DISPLAY	V	B	R	E	_	_	_	0
AV2 RESET	V	B	R	E	_	_	_	1
COMPONENT CONTRAST(0 ~ 60)	C	A	P	I	_	*	*	*
COMPONENT BLACK LEVEL(–30 ~ +30)	C	A	B	R	_	*	*	*
COMPONENT COLOUR(–30 ~ +30)	C	A	C	O	_	*	*	*
COMPONENT SHARPNESS(–30 ~ +30)	C	A	S	H	_	*	*	*
COMPONENT RED(–30 ~ +30)	C	A	R	D	_	*	*	*
COMPONENT BLUE(–30 ~ +30)	C	A	B	E	_	*	*	*
COMPONENT DISPLAY	C	A	R	E	_	_	_	0
COMPONENT RESET	C	A	R	E	_	_	_	1
VOLUME(0 ~ 60)	V	O	L	A	_	_	*	*
MUTE OFF	M	U	T	E	_	_	_	0
MUTE ON	M	U	T	E	_	_	_	1
TREBLE	A	A	T	E	_	*	*	*
BASS	A	A	B	A	_	*	*	*
BALANCE	A	A	B	L	_	*	*	*
SOUND DISPLAY	A	A	R	E	_	_	_	0
SOUND RESET	A	A	R	E	_	_	_	1
RGB CONTRAST(0 ~ 60)	R	A	P	I	_	*	*	*
RGB BLACK LEVEL(–30 ~ +30)	R	A	B	R	_	*	*	*
RGB RED(–30 ~ +30)	R	A	R	D	_	*	*	*
RGB BLUE(–30 ~ +30)	R	A	B	E	_	*	*	*
RGB DISPLAY	R	A	R	E	_	_	_	0
RGB RESET	R	A	R	E	_	_	_	1
CLOCK(–10 ~ +10)	I	N	C	L	_	*	*	*
PHASE(0 ~ 20)	I	N	P	H	_	*	*	*
H-POS(–20 ~ +20)	I	A	H	P	_	*	*	*
V-POS(–20 ~ +20)	I	A	V	P	_	*	*	*
FINE SYNC DISPLAY	I	A	R	E	_	_	_	0
FINE SYNC RESET	I	A	R	E	_	_	_	1
INVERT OFF	I	M	I	N	_	_	_	0
INVERT ON	I	M	I	N	_	_	_	1
REVERSE OFF	I	M	R	E	_	_	_	0
REVERSE ON	I	M	R	E	_	_	_	1
INPUT DISPLAY OFF	I	M	D	I	_	_	_	0
INPUT DISPLAY ON	I	M	D	I	_	_	_	1
DISPLAY	S	Y	S	E	_	_	_	0

Note If a dash (_) appears in the parameter column, enter a space. If an asterisk (*) appears, enter a value in the range indicated in brackets under CONTROL CONTENTS.

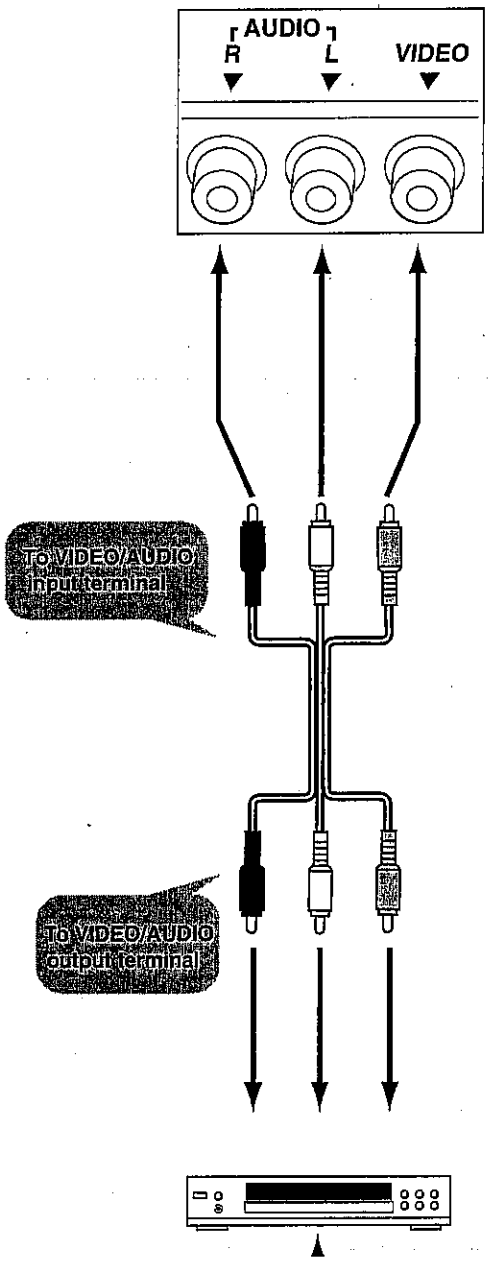
Connecting to Video Equipment

Watching TV

■ To view a TV broadcast on the LCD monitor, the set-top box must be used with a TV tuner, satellite tuner or VCR. Refer to the diagram below for wiring.

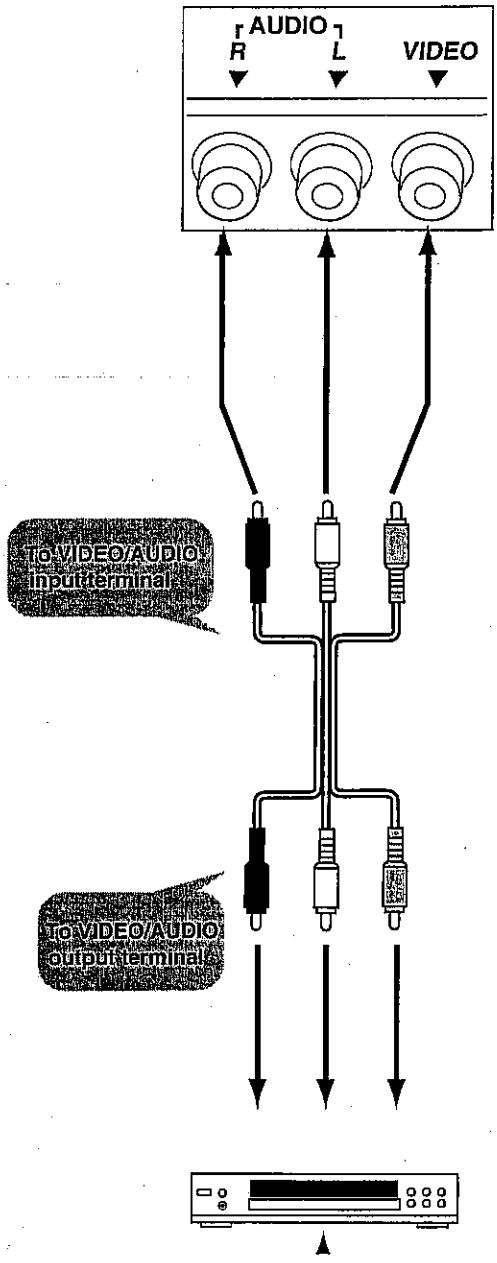
Note Refer to the manual how to connect these tuner to the room antenna terminal.

Via TV



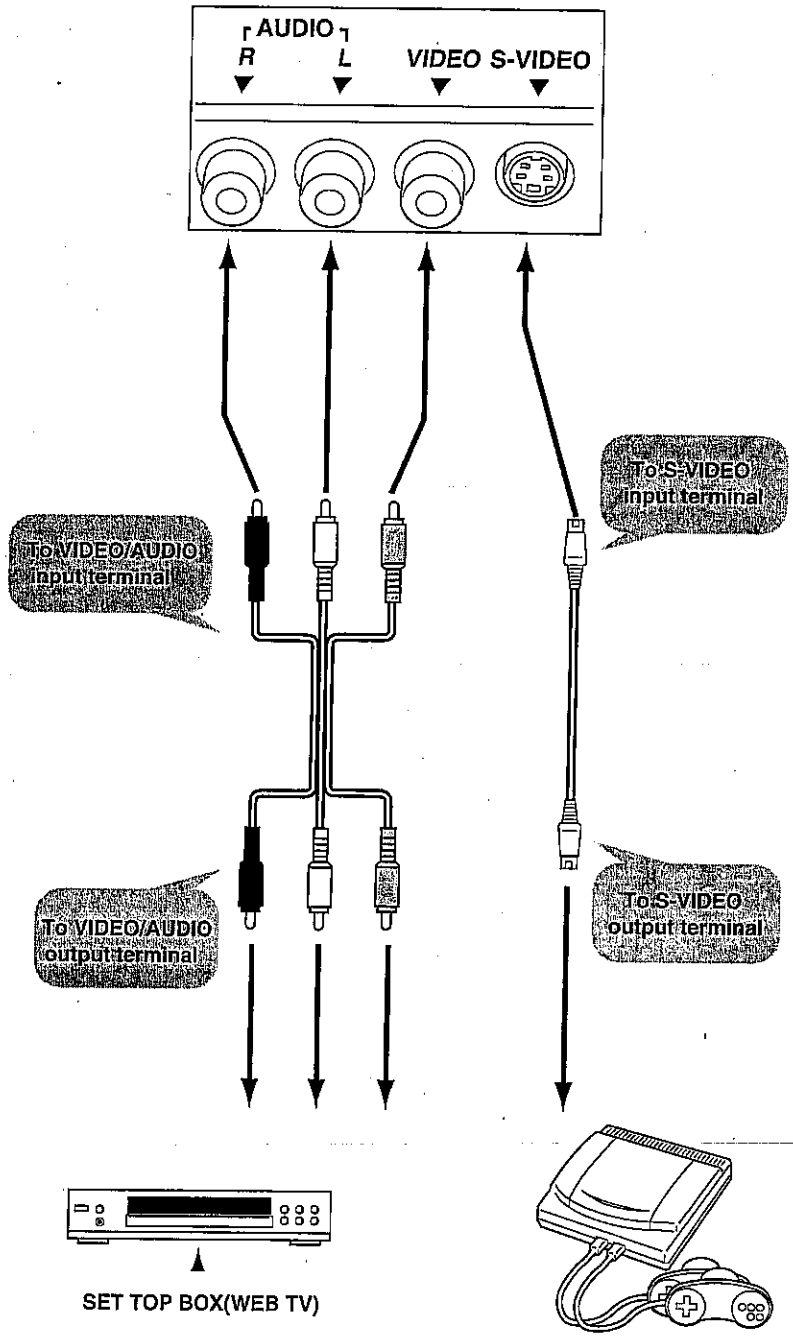
VCR, TV TUNER

Via Satellite TV, Pay TV



SATELLITE TUNER,
SET TOP BOX(FOR PAY TV)

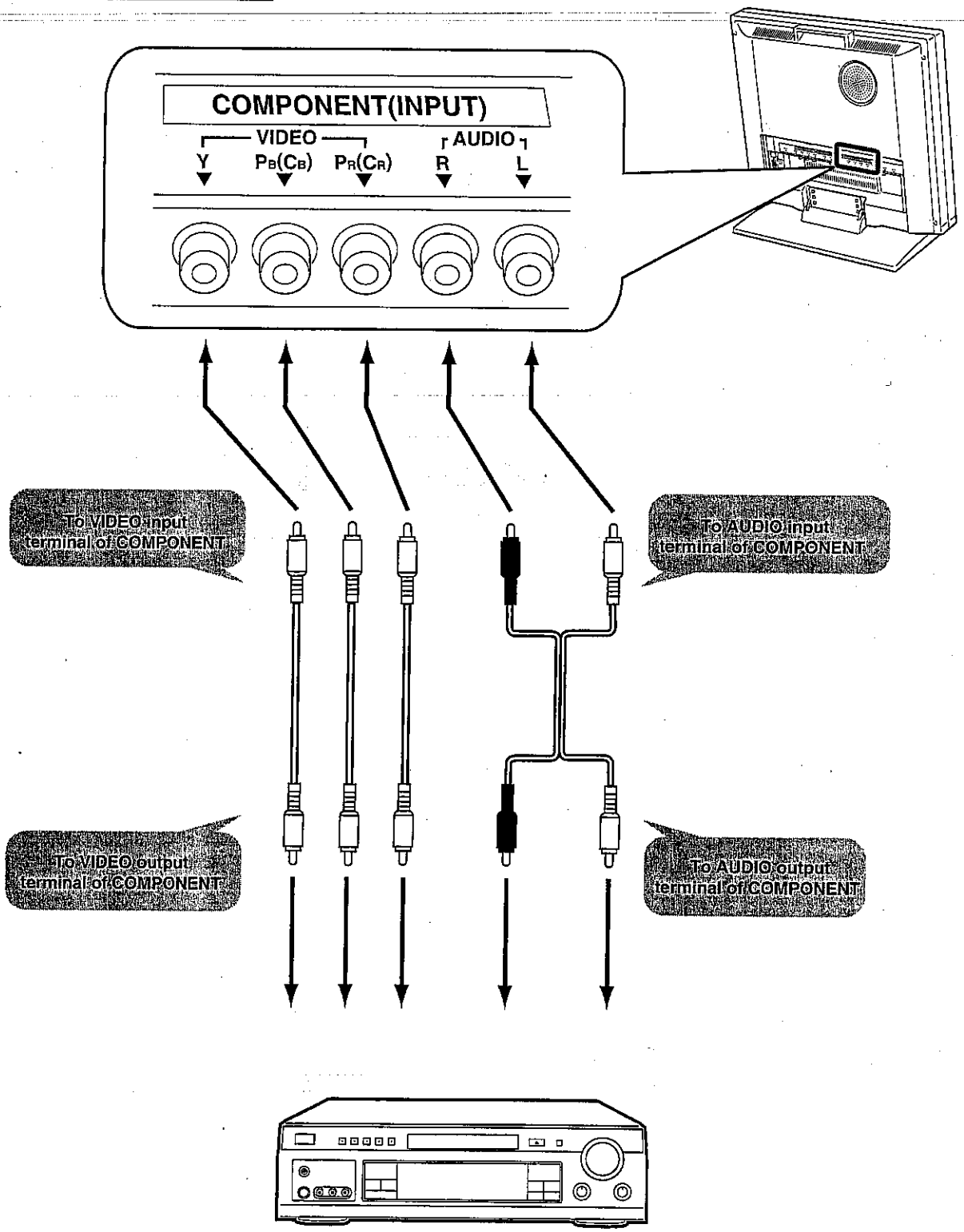
Via Web TV, Game Unit



Connecting with VIDEO Equipment

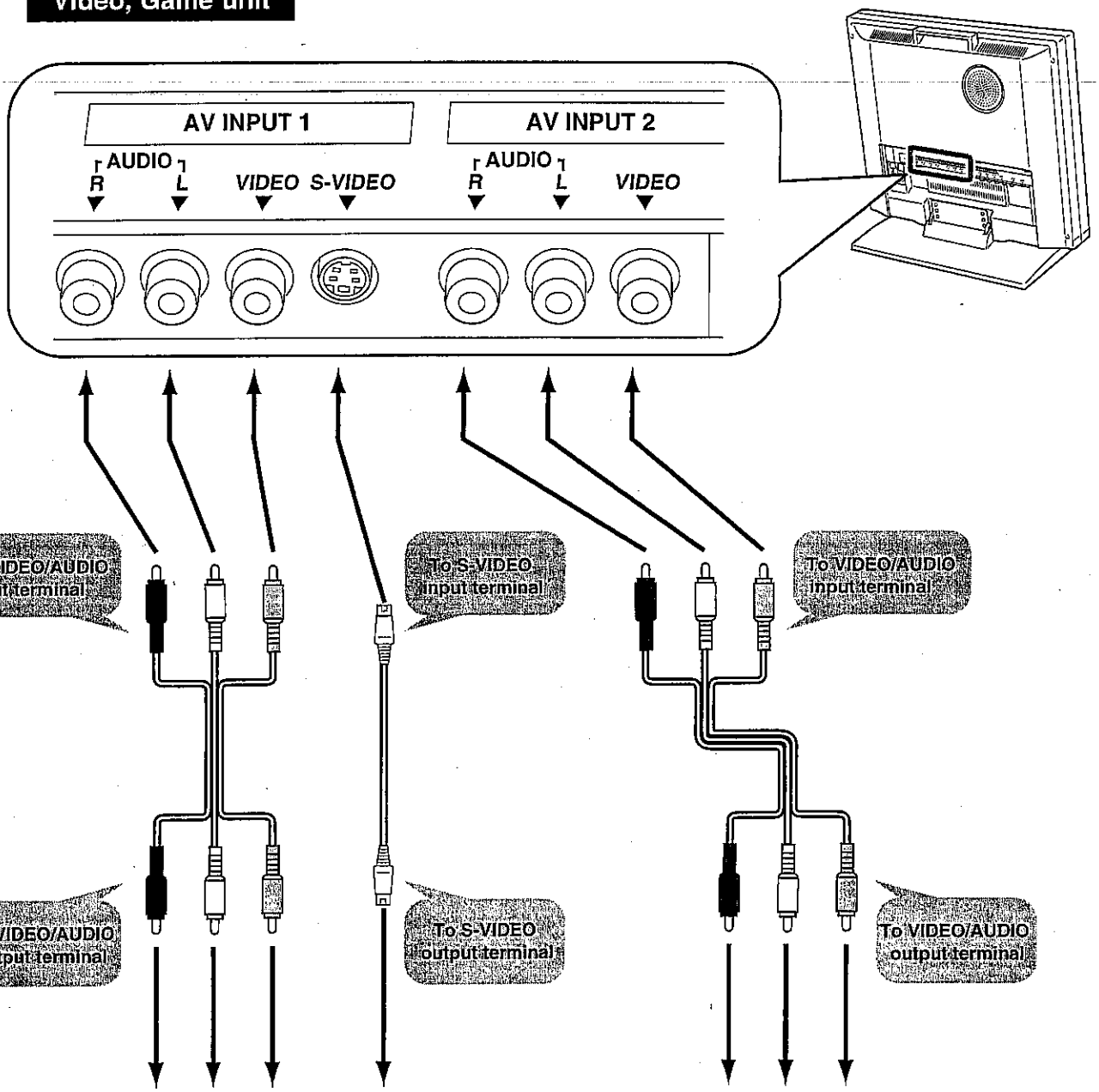
■ This LCD AV monitor can be connected with the most of video equipment as follows.

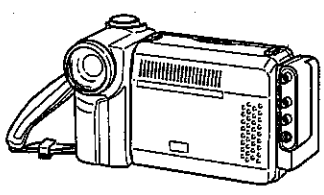
Digital Video Disc



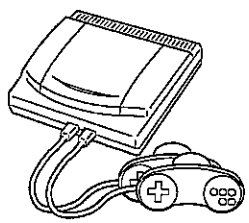
DVD PLAYER

Video, Game unit



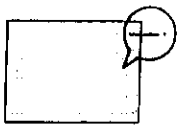
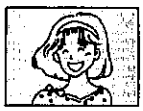
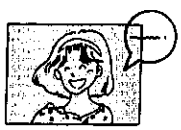
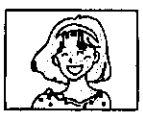


VIDEO CAMERA ETC.



GAME UNIT

Troubleshooting

Problem	Check item	Pages
 No image on screen, and no sound from speakers.	• Make sure AC power cord plug is securely inserted in AC power outlet and AC adapter. • Make sure AC adapter's DC output is securely connected to main unit's DC input terminal. • Make sure main unit's main power switch is turned on. • Make sure AV input is properly set. • Make sure cables are correctly connected to rear terminal section of LCD monitor. • Make sure remote control batteries have not worn out. • Make sure the unit is not in the standby mode (power indicator is red).	5 5 10 10 22 5 11
 Speakers produce sound, but no image on screen.	• Make sure cables are correctly connected.	22
 Image is too light or improperly tinted.	• Check Colour and Tint adjustments. (NTSC ONLY) • Make sure Contrast and Black Level adjustments are not set too high. • Check that Red and Blue adjustments are near the centre. • Check component video input cable.	13 13 13 24
 Image is displayed, but no sound from speakers.	• Make sure cables are properly connected to rear terminal section of LCD monitor. • Check Sound setting. • Make sure sound is not muted. • Make sure headphone is not connected.	22 14 11 6
 Image is too dark.	• Check to see if Brightness adjustment is not set to DARK. Screen brightness can be set to three levels (DARK, NORMAL and BRIGHT). • Make sure Contrast and Brightness adjustments are not set too low. • Lamp may have reached the end of life. (Contact a Sharp service shop for lamp replacement.)	15 13
 No colours on image.	• Check Colour adjustment. • Make sure proper colour system is set. • In the case of component mode, check to make sure P_B (C_B) and P_R (C_R) signals are input.	13 13
Remote control does not work.	• Check to see if batteries in remote control have sufficient power. • Check to make sure (+) and (–) side of batteries are properly positioned in remote control. • Make sure infrared transmitter window is not receiving strong light such as light from fluorescent lamps.	5 5

Specifications

ITEM		LC-20VM2
LCD	Size (Diagonal)	20" (Approx. 500 mm)
	Number of pixel	921,600 = 640(H) × 3(RGB) × 480(V)
	Low reflection	Non-glare
	Brightness	400cd/m² (at normally white)
	Viewable angle Left to right	120°
	Upper to lower	100°
	Life of back light	40,000 hours (at normal mode)
VIDEO	System	N358/N443/PAL/PAL-M/PAL60/SECAM
	Digital comb filter for PAL/SECAM	○
	3D Y/C separator for NTSC	○
	Wide-band chroma IC	○
	Gamma correction circuit	○
	Line scanning for PAL/SECAM	Curtailed System
AUDIO	Output	4.0 W
	Speaker Full range	3 cm × 4 cm Oval, 2 pcs.
	Woofer	8 cm Round, 1 pc.
INTERFACES (TERMINALS)	AV input 1	Audio R/L, Video S-terminal/RCA composite
	AV input 2	Audio R/L, Video RCA composite
	Component input	Audio R/L, Video Y/PB (CB)/PR (CR)
	RGB input	Audio ϕ3.5 R/L VGA (60Hz) computer input
	Control	RS232C
	Headphone jack	Mini-jack for stereo
POWER SUPPLY	DC operation	DC 13V
	AC operation	AC100~240V with AC adapter
	Power consumption	50.7 W
APPEARANCE	Exterior colour	Silver
	Outside dimensions	460 (W) × 435 (H) × 180 (D) mm (with stand) 460 (W) × 406 (H) × 49.5 (D) mm (without stand)
	Net weight	8.7 kg (with stand) 6.3 kg (without stand)
ACCESSORIES	Remote control	Infrared wireless type
	AC adapter	Auto-wide type
	Operation manual	language: English/Chinese (traditional)/ Chinese (simplified)/Arabic
	AC cord	2 m
	AV cable	1.5 m
	Cable clamp	2 pcs
	Din-D/sub RS232C cable	1 pc

Note Above specification might be changed without notice.

Dimensional Drawings